ABSTRACT: A method and apparatus for wheel alignment of single track vehicles, particularly motorcycles and bicycles having front alignment unit (20) including an alignment strut (21), a laser target (25), and a laser module (23) disposed from the longitudinal centerline of the vehicle front wheel (1) to emit a rearward projecting laser beam (9); and a rear alignment unit (40) including an alignment strut (21), a laser target (25), and a laser module (23) disposed from the longitudinal centerline of the vehicle rear wheel (4) to emit a forward projecting laser beam (8). Alternately either the laser target (25) of the front alignment unit (20) or of the rear alignment unit (40) can be a reflective mirror surface, whereby the forward or rearward projecting laser beams (8,9) are reflected toward the target of the opposite alignment unit. The forward and rearward projecting laser beams (8,9) are aligned with each other such that a common reference plane is formed, whereby the vehicle front and rear wheels (1,4) are aligned.